MEMORANDUM

DATE: August 2, 1982

TO: Division File

FROM: Tim Greetis

SUBJECT: Brighton/Brighton #1 and #2 - 1178020I and 1178020J

The two Brighton landfill sites are separate permitted facilities even though they are adjacent to each other with the #1 site consisting of approximately 32 acres and the #2 site, 11.36 acres. They are located roughly two miles south of Brighton and are bordered on the east by the now extinct Chicago, Burlington and Quincy Railroad tracks. More specifically, they are located in SE 1/4, SW 1/4 of Section 30, Township 7 North, Range 9 West, Macoupin County, Illinois. Operational Permits were granted to the #1 site on November 12, 1975 and the #2 site on September 13, 1979. The latest Supplemental Permit Application for both sites is to deepen the trenches from 30 feet to 60 feet to obtain maximum volume disposal of wastes. This Supplemental Permit was granted on June 21, 1982 and according to this permit, prior to issuance of an Operating Permit for each phase, a registered engineer must certify that three objectives are met. These objectives are concerning the permeability of the base and sidewalls of each phase, the permeability of the sealed sidewalls if they need by sealed, and that the leachate collection system has been completed according to plan. Validity of this permit application is the main concern and due to these sites being classified as one of the states hazardous waste disposal sites, a "boring check" on the existing wells/borings was performed.

On July 1, 1982 the Drill Rig Unit - Tim Greetis, Doug Tolan and Ken Bosie, accompanied by Perry Mann of the Southern Region Office began to perform the "boring check" on the existing wells/borings. Due to inclement weather on Friday July 2, the investigation was resumed and completed on Tuesday July 6 by the Drill Rig personnel. A total of four (4) borings were drilled next to borings provided by John Mathes and Associates, Inc. as part of the landfills previously discussed Supplemental Permit Application of February 17, 1982. The depths of IEPA investigative borings ranged from a twenty-four foot depth at B-1 to sixty one total feet at B-2. Correlation of borings is as follows:

Mathes	IEPA
B-18	B-1
B-12, 12A	B-2
B-9	B-3
B-7, 7A	B-4

The main concern was to determine the accuracy of the boring log descriptions of J. Mathes to the actual subsurface lithologies. Soil samples were collected at critical depths and those that have been chosen for sieve analysis and hydrometer size analysis have been forwarded to Soil Testing Services in Peoria. Three shelby tube samples were also collected and they too have been sent to the same lab for the same set of analysis plus permeability. Results of these samples are expected to be completed within the next few weeks.

Comparison of these four borings has proven that the descriptions provided by J. Mathes and Associates, Inc. are very vague and that critical subsurface intervals were omitted on the boring logs in the application. The largest discrepancy appeared to be in the IEPA boring B-3 in comparison with the Mathes boring B-9. It was found that there is approximately thirteen (13) feet of brown, fine to medium grained sand at a depth of 22.5 feet which contains an abundant amount of water. Sample collection of this entire interval was not possible due to the collapse of sand into the bore hole when the center plug of the hollow-stem auger was removed. The Mathes boring implies that the sand interval grades into a silty member then into a totally different clay member at a depth of 31 feet. This clay which we classified as a clayey silt was not encountered until a depth of around 35 feet in the IEPA boring.

The other borings seem to be fairly accurate taking into account the slightly different lithologic descriptions. Several thin sand units were discovered by the IEPA that were not mentioned in the Mathes borings. A continous shallow sand was discovered and found to exist in each of the IEPA borings yet the Mathes borings chose to omit them. Perry Mann had the opportunity to visit John Mathes and Associates, Inc. to view their boring samples which were retained at their office. It was observed that in several instances, a sample that contained two completely different lithologies, for example sand and clay, the less permeable lithology was sent to the lab for analysis, in this case the clay. Thus the boring log included with the permit application shows a bias permeability for a sample that actually included two different permeable lithologies, which therefore does not accurately represent the permeability of that sampled interval.

In conclusion, it appears that there exists several sand units throughout the entire site with significant units bearing abundant water for contamination to occur and be transported off-site possibly to nearby residential wells. Several of these sand units were neglected to be discussed in the Supplemental Permit Application even though it is evident that they do exist. Another difference in log comparison is that the sands encountered by the IEPA seem to be thicker than the Mathes borings indicate. There is also a problem with the most recently developed boring logs by Mathes for the Supplemental Permit Application. These are borings of which five were placed very near already existing monitor wells and three which were placed in areas unoccupied by wells. The problem is that all of these have been bored to a total depth ranging from 42 to 93 feet with the boring still excavated and no monitor well

installed. This could be causing cross-contamination between water bearing sand deposits, a surface water drainage collection point possibly causing surface water contaimination to enter the groundwater system, and could lead to inaccurate depth of the monitor well if one was to be installed in the same boring. Therefore, if a monitor well was to be installed in the same general vicinity, an entirely new boring and log should be completed to accurately represent materials to which the well was installed.

TG:bw/4905C/41-42